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What Is Claimed Is:

1. A moldable pellet used for making high impact, low abrasive recyclable structural composites comprising:

an inner cellulosic fiber yarn; and

a thermoplastic polymer sheath surrounding said inner cellulosic fiber yarn.

2. The moldable pellet of claim 1, wherein said inner cellulosic fiber yarn comprises between approximately 2 and 80 percent by weight of the moldable pellet.

3. The moldable pellet of claim 1, wherein said thermoplastic polymer sheath is selected from the group consisting of a high melt flow index polypropylene polymer sheath, a high melt flow index polyethylene polymer sheath, a high melt flow index nylon polymer sheath, a high melt flow index polycarbonate polymer sheath, and a high melt flow index ABS polymer sheath.

4. The moldable pellet of claim 1, wherein said inner cellulosic fiber yarn comprises a Rayon fiber yarn.

5. The moldable pellet of claim 1, wherein said inner cellulosic fiber yarn comprises a Lyocell fiber yarn.

6. The moldable pellet of claim 1, wherein the weight of said said inner cellulosic fiber yarn is between approximately 0.8 and 4.0 grams/yard.

7. The moldable pellet of claim 1, wherein the length of said moldable pellet is between approximately one-eighth inch and twenty-four inches after chopping or pelletizing.

8. The moldable pellet of claim 1 further comprising a low viscosity sizing composition coupled to said inner cellulosic fiber yarn and within said thermoplastic polymer sheath.

9. The moldable pellet of claim 8, wherein said low viscosity sizing composition is selected from the group consisting of an oil sizing composition, a lubricant, a wax, a polymeric sizing composition, and a non-polymeric sizing composition.

10. A method for making a high impact, low abrasive recyclable structural composite comprising the steps of:

providing a continuous cellulosic fiber yarn;

spreading a first amount of a liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn;

solidifying said liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn to form a pellet precursor;

chopping or pelletizing said pellet precursor to form a moldable pellet having a first length;

molding at least one of said moldable pellets to form the structural composite.

11. The method of claim 10, wherein the step of providing a continuous cellulosic fiber yarn comprises the step of providing a continuous cellulosic fiber yarn, wherein said continuous cellulosic fiber

yarn is selected from the group consisting of a continuous Rayon fiber yarn and a continuous Lyocell fiber yarn.

12. The method of claim 10, wherein the step of spreading a first amount of a liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn comprises the step of passing said cellulosic fiber yarn through a cone-shaped die to apply a first layer of thermoplastic polymer resin circumferentially around said cellulosic fiber yarn.

13. The method of claim 10, wherein the step of spreading a first amount of a liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn comprises the step of spreading a liquid high melt flow index polypropylene polymer sheath circumferentially around said cellulosic fiber yarn.

14. The method of claim 10, wherein the weight of said cellulosic fiber yarn in said moldable pellet comprises between approximately 2 and 80 percent of the weight of said moldable pellet.

15. The method of claim 10, wherein the step of solidifying said liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn to form a pellet precursor comprises the step of cooling said liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn to form a pellet precursor using a water bath.

16. The method of claim 10, wherein the step of molding at least one of said moldable pellets to form the structural composite comprises the step of molding at least one of said moldable pellets with a

first machine at between 170-240°C to form the structural composite, wherein said first machine is selected from the group consisting of an injection molding machine, a compression molding machine and an extrusion compression molding machine.

17. The method of claim 10, wherein the step of molding at least one of said moldable pellets to form the structural composite comprises the step of molding at least one of said moldable pellets with a first machine at between 170-240°C to form the structural composite, wherein said first machine is selected from the group consisting of an injection molding machine and an extrusion compression molding machine.

18. The method of claim 17 further comprising the step of introducing a sizing composition around said continuous cellulosic fiber yarn prior to the step of spreading a first amount of a liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn.

19. The method of claim 17 further comprising the step of introducing a peroxide wax additive to said liquid thermoplastic polymer sheath prior to the step of spreading a first amount of said liquid thermoplastic polymer sheath circumferentially around said cellulosic fiber yarn.

20. The method of claim 10, further comprising the step of dry mixing a polymer resin with said moldable pellet prior to the step of molding at least one of said moldable pellets to form the structural composite, wherein said polymer resin is

selected from the group consisting of a low melt flow index polypropylene and a low melt flow index polyethylene.